

# Statistics and the German State, 1900–1945

*The Making of Modern Economic Knowledge*

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## Introduction

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Today, statistics define our knowledge of the economy. The countries of the world rank themselves in terms of their gross national product (GNP). Indicators such as the Retail Price Index (RPI) are used routinely in the regulation of everyday life. New numbers are news. The calendar of statistical publications provides grist to the mill of financial speculation and business planning. Numerical representations shape our conception of the economy in subtle but profound ways. Statistics reinforce our sense of the economy as a realm apart from other spheres of life. The economy has assumed the status of a substantive entity, even an actor: an actor, however, who moves in one dimension. We speak of unemployment as 'going up' or 'down', 'rising' or 'falling'. In large part, this is surely because we think of unemployment as a statistic or a graph plotted over time. It would be eccentric to describe unemployment as 'spreading'. Whereas an earlier language spoke of economic expansion, or progress, the master term in our vocabulary is 'growth'. Statistics also shape our understanding of economic history. The reconceptualization of the economic past in terms of macroeconomic data has come close to obliterating the 'industrial revolution'.<sup>1</sup> The dramatic story of Arkwright and the dark satanic mills has been replaced by a narrative of undramatic growth in large statistical aggregates such as industrial production. This book is driven by the desire to understand how this peculiar structure of economic knowledge came into existence. In pursuit of this larger question, it explores the making of modern economic statistics in Germany in the first half of the twentieth century. How to justify this narrow focus in time and place?

When we scratch the surface we discover that modern economic statistics are of surprisingly recent origin. The first recognizably modern statistical projects in Europe date to the birth of the modern state in the

<sup>1</sup> D. Cannadine, 'The Present and Past in the English Industrial Revolution', *Past and Present*, 103 (1984), pp. 131–172 and M. Berg and P. Hudson, 'Rehabilitating the Industrial Revolution', *Economic History Review*, 45 (1992), pp. 24–50.

seventeenth century.<sup>2</sup> The intrusive policies of absolutism made censuses a regular event in the eighteenth century. But it was the revolutions of the late eighteenth century, which gave shape to official statistics in the form we know today. In 1787 the constitution of the newly independent United States called for a regular census to establish the membership of the House of Representatives. In 1800 revolutionary France established the first ‘Bureau de statistique’.<sup>3</sup> This was enough to persuade counter-revolutionary Britain. In 1753 the Houses of Parliament had rejected a census as an unwanted intrusion upon ‘English liberty’. In 1801 the first modern census of population went ahead almost entirely unopposed. Statistical offices were established in Prussia in 1805, in Bavaria in 1806, in 1810 in Habsburg Vienna, in 1820 in Württemberg, in 1826 in the Netherlands and in 1831 in the newly independent Belgium. The British Board of Trade established its statistical department in 1832. Five years later demographic statistics were placed under the control of the Registrar General.<sup>4</sup> Russian administrative statistics were put on an institutional footing in 1834. In 1833 Denmark set up a Central Statistical Commission, followed by Norway in 1837. Finland was the last of the Scandinavian countries to establish a statistical office in 1865. The constitution of the ‘double-monarchy’ was shortly followed in 1867 by the formation of an Hungarian statistical bureau. The provisional Republic put Spain on the statistical map in 1873. Inspired by the ideas of Saint-Simon the fledgling Greek state had set up a statistical section as early as 1834. In 1850 funds were finally appropriated to establish a semi-permanent office of the census for the United States. By this time, no self-respecting state administration did without some kind of statistical equipment.

This early history of statistics is a field that has recently begun to attract historians.<sup>5</sup> We have studies of social statistics, demography and the techniques of mathematical statistics. But, strangely enough, despite their obvious importance, the history of economic statistics remains

<sup>2</sup> M. Rassem (ed.), *Statistik und Staatsbeschreibung in der Neuzeit* (Paderborn, 1980). For a general discussion see S.J. Woolf, ‘Statistics and the Modern State’, *Comparative Studies in Society and History*, 31 (1989), pp. 588–604.

<sup>3</sup> J.-C. Perrot and S.J. Woolf, *State and Statistics in France, 1789–1915* (London, 1984); M.-N. Bourguet, *Déchiffrer la France: la statistique départementale à l’époque napoléonienne* (Paris, 1988) and J. Dupâquier and M. Dupâquier, *Histoire de la Démographie* (Paris, 1985), pp. 256–274.

<sup>4</sup> P. Corrigan and D. Sayer, *The Great Arch: English State Formation as Cultural Revolution* (Oxford, 1985), pp. 124–125.

<sup>5</sup> T.M. Porter, *Trust in Numbers. The Pursuit of Objectivity in Science and Public Life* (Princeton, 1995); S. Patriarca, *Numbers and Nationhood: Writing Statistics in Nineteenth-Century Italy* (Cambridge, 1996); A. Desrosières, *La politique des grands nombres. Histoire de la raison statistique* (Paris, 1993).

underexplored. We do have a number of excellent studies of econometrics.<sup>6</sup> They trace the development of the mathematical techniques used to manipulate data and to test economic theories. These studies are fascinating in their own right. For the uninitiated they provide an excellent historical introduction to an arcane discipline. However, they are largely orientated towards the preoccupations of the discipline of econometrics itself. At their heart is the conversation between a series of canonical figures: Slutsky, Frisch, Tinbergen and Haavelmo. This book pursues an agenda which is different but complementary. It is concerned not with statistical techniques but with the production of factual economic knowledge. It makes a first attempt to map out the development of the repertoire of modern economic statistics. Its subject matter is therefore more mundane in all senses of that word: more commonplace, but also more popular and widespread. The history of statistical facts cannot be written without reference to the history of statistical techniques, but the history of factual economic knowledge demands a wider approach. The statistical data discussed here are treated not as the sole property of academics but as an integral part of the economic and social world, which they seek to describe. As is suggested by the title, this book analyses how the *German state* set about *making* a modern form of economic knowledge. Statistics are not neutral reflections of social and economic reality. They are produced by particular social actors in an effort to make sense of the complex and unmanageable reality that surrounds them. The most fundamental aim of this book is to show that historical statistics should not therefore be relegated to footnotes, encapsulated within tables or consigned to appendices. They should be treated like other cultural artefacts, texts or images. Their history should be integrated within the wider history of the society that produces them.

To historians of the medieval or early modern periods, in which the practices of quantification first became established, this need to treat statistics as cultural artefacts will be entirely obvious. For modern economists and economic historians the effect of contextualization may be somewhat more jarring: the independent status of our disciplines is founded to such a large extent on the authority of statistics. Perhaps it is therefore worth adding a few words of reassurance. By showing that statistical facts are produced by particular actors, in particular contexts, with particular interests, this book does not aim to 'debunk' the efforts of economic statisticians; on the contrary. The attitude of this book is pragmatic. Over the last couple of centuries the usefulness of statistics

<sup>6</sup> M. Morgan, *The History of Economic Ideas* (Cambridge, 1990) and J.L. Klein, *Statistical Visions in Time. A History of Time Series Analysis 1662–1938* (Cambridge, 1997).

has surely been demonstrated beyond reasonable doubt. They are now so ubiquitous in the everyday practices of economic life that the idea of writing modern economic history without reference to statistics amounts to romantic nostalgia. Whether or not statistical facts can claim the status of ‘truth’ or ‘objectivity’ in some metaphysical sense is irrelevant for all practical purposes. This book, in any case, is not concerned with questions of philosophy. If there is a critical edge to the argument, it is political. The questions with which we will be concerned are about the relationship between practical knowledge and power – and, in particular, the relationship between efforts to govern the economy and efforts to make the economy intelligible through systematic quantification.

## I

The systems of economic statistics, that we take for granted today, emerged across the industrialized world as the result of a dramatic burst of innovation. This began tentatively in the 1870s and gathered momentum around the turn of the century. The most intense phase of activity was unleashed by World War I. Three decades later, in the 1950s, the process culminated with the global standardization of the modern repertoire of macroeconomic statistics.<sup>7</sup> In less than a century, the state of empirical economic knowledge was radically transformed. The result was a new empirical image of the economy. We can solidify this chronology with a brief comparative history of four key elements in this new matrix of statistical knowledge: the balance of payments, unemployment, prices and national income.

Trade statistics are the oldest economic statistics. It might therefore be argued that they fit least well with the modern chronology set out here. Records of goods crossing the borders of states and statelets go back to the early modern period. However, these data were compiled for administrative purposes. When did customs records become trade statistics as we know them today? In the British case, which may be taken as representative of the first generation of nation-states, systematic records of trade began to be collected in the seventeenth century.<sup>8</sup> But, at first, no attempt was made to record the value of exports and imports in current terms. Throughout the eighteenth century the unit prices of

<sup>7</sup> The term ‘macroeconomics’ is used to distinguish aggregative economic analysis of all kinds from microeconomics, which focuses on individual economic agents and their interactions.

<sup>8</sup> R. Davis, *The Industrial Revolution and British Overseas Trade* (Leicester, 1979), pp. 77–86 and A. Maizels, ‘The Overseas Trade Statistics of the United Kingdom’, *Journal of the Royal Statistical Society*, 112 (1949) II, pp. 207–223.



imports and exports were fixed at so-called 'historic values' set in the 1690s. By the late eighteenth century these were wildly inaccurate. It was only in 1798 that export figures began to be compiled in current values. Of course, it was possible for economists and journalists to make their own estimates of the balance of trade, but these were unauthorized interpretations of the official data. Official import figures were not finally valued in current prices until the 1850s. The modern procedure for calculating the trade balance from customs declarations for both exports and imports was instituted only in 1869. From this point onwards one can definitely speak of an official estimate of the balance of trade. On closer inspection, the history of British trade statistics thus falls into line with the chronology for late-developing European nation-states, such as Germany. The trade accounts of the Zollverein set up in the 1830s were really no more than spin-offs of the customs system.<sup>9</sup> They covered only those goods on which duty was charged. It was only in 1879 that all goods crossing the borders of the new German Empire were systematically registered, classified and valued. Between the 1840s and 1880 24 countries established reliable trade statistics. By 1913 this number had increased to 33 and by the 1920s the trade between 90 countries could be monitored in statistical terms.<sup>10</sup> The inter-national economy was thus defined as a space of trading relationships between more or less clearly defined national economic units tied together by the well-monitored movements of goods.

In statistical terms, however, the monitoring of this inter-national economy was still incomplete. The trade balance was only one part of an increasingly complex network of international economic transactions. Trade in services, earnings on foreign investments and international borrowing and lending matched visible trade flows. The practice of international finance was, of course, well understood by contemporaries. However, it was not until the 1870s that economic theorists began to systematically integrate the balance of payments into their models, embracing both trade transactions and capital movements. It was the arguments over international finance and reparations in the 1920s that gave birth to international economics in the form that is still taught today.<sup>11</sup> During that turbulent decade, the state of statistical information on the balance of payments remained, in the words of John Maynard Keynes 'deplorably deficient . . . in search of facts of vital

<sup>9</sup> W. Heimer, *Die Geschichte der deutschen Wirtschaftsstatistik von der Gründung des Deutschen Reichs bis zur Gegenwart* (Frankfurt, 1928), pp. 10–33.

<sup>10</sup> E. Wagemann, *Wagen, Wägen und Wirtschaften. Erprobte Faustregeln – Neue Wege* (Hamburg, 1954), p. 72.

<sup>11</sup> M.J. Flanders, *International Monetary Economics, 1870–1960. Between the Classical and the New Classical* (Cambridge, 1989).

national importance, we . . . continue to grope in barbaric darkness'.<sup>12</sup> In response to this situation, the League of Nations began to compile estimates of the balance of payments for the leading nations in the early 1920s. And in 1926 the United States Commerce Department issued the first official estimates of the US foreign account. Germany followed suit later in the decade. But Britain did not finally begin a regular series of official estimates until after World War II.<sup>13</sup> One of the first tasks of the International Monetary Fund (IMF) in the late 1940s was to formulate global standards for the measurement of the balance of payments.<sup>14</sup> Despite the early development of trade statistics, the modern system of international economic statistics took shape between the mid-nineteenth century and the 1950s.

The statistical definition of unemployment falls in the same broad period. In the late nineteenth century, unemployment was viewed primarily as an issue of social policy. Analysts were primarily concerned with 'the unemployed' rather than 'unemployment'. Joblessness was attributed to the feckless character of the jobless, or to the peculiar problems of casual labour markets. By contrast, the concept of unemployment that emerged in the aftermath of World War I was defined primarily in economic terms. This has been a common finding of historical research on Britain, France, the United States and Germany.<sup>15</sup> Unemployment was reconceived as a mismatch between the demand for and the supply of labour. Its primary explanation therefore lay not in individual behaviour but in wider economic problems. Of course, the social concern for the unemployed remained. Moral denunciations of the work-shy were never completely silenced. But the fundamental cause of unemployment was now seen as economic. This new understanding was underpinned by the increasing organization of the labour market, which in turn permitted the creation of new unemployment statistics. In Britain and Germany the innovations bunch around World War I. Unified labour exchanges were established by Act of

<sup>12</sup> J.M. Keynes, 'The British Balance of Trade, 1925–27', *Economic Journal*, 37 (1927), pp. 551–565.

<sup>13</sup> C.F. Carter and A.D. Roy, *British Economic Statistics. A Report* (Cambridge, 1954), pp. 79–93.

<sup>14</sup> F. Machlup, 'Three Concepts of the Balance of Payments and the So-Called Dollar Gap', *Economic Journal*, 40 (1950), pp. 46–68.

<sup>15</sup> On Britain see J. Harris, *Unemployment and Politics* (Oxford, 1972) and W. Walters, 'The Discovery of "Unemployment": New Forms for the Government of Poverty', *Economy and Society*, 23 (1994), pp. 265–290; on the United States see A. Keyssar, *Out of Work. The First Century of Unemployment in Massachusetts* (Cambridge, MA, 1986); on France R. Salais, N. Bavarez and B. Reynaud, *L'invention du chômage* (Paris, 1986); on Germany A. Faust, *Arbeitsmarktpolitik im Deutschen Kaiserreich. Arbeitsvermittlung, Arbeitsbeschaffung und Arbeitslosenunterstützung 1890–1918* (Stuttgart, 1986).

Parliament in Britain in 1909 and unemployment insurance followed in 1911. In Germany a unified national system of labour exchanges was established in 1915, which was brought fully under state control in 1922. Unemployment insurance followed in 1927. The insurance system generated data on the numbers in work and the numbers receiving benefits. The exchanges registered job seekers and vacancies. France and the United States monitored the labour market less closely but here too there was increasingly regular and intensive statistical measurement from the turn of the century. By the interwar period the masses of men and women unsuccessfully seeking work had been established as a phenomenon demanding economic analysis.

The history of price statistics and national income accounting help further to solidify our chronology. In 1922, Irving Fisher, the foremost exponent of index numbers, wrote as follows: 'index numbers are a very recent contrivance . . . although we may push back their invention a century and three quarters, their current use did not begin till 1869 at the earliest, and not in a general way till after 1900. In fact, it may be said that their use is only seriously beginning today.'<sup>16</sup> In the 1860s and 1870s mathematicians and economists including Jevons, Paasche and Laspeyres experimented with the construction of index numbers. The weekly periodical *The Economist* published the first regular price index in 1869.<sup>17</sup> But the really dramatic upsurge in interest came in the late 1890s when generalized deflation of prices gave way to creeping inflation. The response, this time, came not just from private investigators and journalists but also from the state. The US Bureau of Labor published the first official index of wholesale prices in 1902. Retail price figures and a cost of living index followed in 1907 and 1919, respectively. The British Board of Trade was also a pioneer, producing the first wholesale price index for Britain in 1903. The inflations of World War I triggered a boom in index numbers. By 1927 Fisher was able to list 120 price indices covering no less than 30 countries, published by official statisticians, business periodicals, daily newspapers and large corporations. And it is not just the proliferation of numbers that should interest us. The new indices had a new economic content. The earliest indices were simple averages of commodity prices; by contrast, the wholesale indicators produced by the United States and Britain after the turn of the century were far more sophisticated. They were weighted averages, giving greater significance to some prices rather than others. And there was a clear economic logic behind their construction. The weights

<sup>16</sup> I. Fisher, *The Making of Index Numbers. A Study of their Varieties, Tests and Reliability* (Boston, 1927, 3rd edn), p. 460.

<sup>17</sup> *The Economist 1843–1943* (Oxford, 1943), pp. 138–154.

Table 1. *Date of first publication of official estimate of national income*

Year	Country
1886	Australia
1925	Soviet Union and Canada
1929	Germany
1931	Netherlands
1931	New Zealand
1934	United States
1935	Turkey
1937	Yugoslavia
1939	Switzerland and Mexico
1941	United Kingdom
1944	Sweden and Norway
1947	France

Sources: P. Studenski, *The Income of Nations* (New York, revised edn. 1958), I, pp. 151–153; F. Fourquet, *Les comptes de la puissance. Histoire de la comptabilité nationale et du plan* (Paris, 1980).

attached to the Board of Trade's wholesale price index were calculated to reflect the total consumption of key commodities by the economy as a whole. More specific indices covered the cost of living and retail prices. These were the first attempts to make visible Adam Smith's 'invisible hand'.

National income statistics are the last and really conclusive piece of evidence.<sup>18</sup> As with the other statistics, one can find early attempts at national income estimation as far back as the seventeenth century. But the early twentieth century witnessed a sudden explosion in activity with new estimates being produced by academics and journalists and then increasingly by official agencies. Studenski's pioneering study provides a truly extraordinary overview (see table 1). In 1900 estimates of national income had been prepared for no more than eight countries. By 1946 there were figures – official and unofficial – for 39 countries. Ten years later, there were more than 80. And here, too, the qualitative change in the data was dramatic. Estimates of national income produced up to the late nineteenth century tended to be crude extrapolations from fragmentary tax records. The questions they sought to answer were distribu-

<sup>18</sup> They are also the one branch of economic statistics to have attracted sustained historical attention. See F. Fourquet, *Les comptes de la puissance. Histoire de la comptabilité nationale et du plan* (Paris, 1980) and M. Perlman, 'Political Purpose and the National Accounts', in W. Alonson and P. Starr (eds.), *The Politics of Numbers* (New York, 1987).

tional. What share of income was attributable to the 'unearned' rents of landowners? How was the remainder divided between capital and labour? Economic statistics were thus orientated towards 'social' questions. The 1920s saw the emergence of a more purely 'economic' interpretation of national income. With the advent of comprehensive censuses of production it became possible to match the figures for national income with estimates of national product. As a result, the interpretative focus began to shift away from issues of distribution towards primarily 'economic' concerns, such as the comparative level of productivity in different sectors and the fluctuations over the business-cycle of total economic activity, as measured by national income or national product. This shift was completed in the late 1920s and early 1930s with the first estimates of total expenditure, divided principally into consumption, investment and government expenditure. It now became possible to picture the economy, in statistical terms, as a self-contained 'circular flow' of production, income and expenditure. This image, first made real in the interwar years, has since occupied the first pages of every textbook in macroeconomics.

Taken together these interrelated statistical innovations constituted a new matrix of economic knowledge, which gave substance to a new conception of the economy.<sup>19</sup> First of all 'the economy' was envisioned as a separate system, distinct, for instance, from 'the social', 'the cultural', or 'the political'. It was a measurable entity, a 'thing'. This conception of 'the economy' as an autonomous social system was more restricted than that embodied in eighteenth-century ideas of a commercial society, or Marx's totalizing conception of the mode of production. But it was also more concrete than those earlier formulations. Linguistic changes signal this shift to a more reified idea of the economic world. In German it was already possible in the mid-nineteenth century to speak of the 'Volkswirtschaft', or national economy.<sup>20</sup> In England, true to its liberal heritage, 'the economy' as a term with which to refer to the entire system of production and exchange did not come into common use until the 1930s.<sup>21</sup> What defined this entity was the relationship between a limited number of key variables: national income, physical production, employment, the balance of payments, the volume of money in circula-

<sup>19</sup> P. Miller and N. Rose, 'Governing Economic Life', *Economy and Society*, 19 (1990), pp. 1–31.

<sup>20</sup> J. Burckhardt, 'Wirtschaft', in O. Brunner, W. Conze and R. Koselleck (eds.), *Geschichtliche Grundbegriffe. Historisches Lexikon zur politisch-sozialen Sprache in Deutschland* (Stuttgart, 1992), 7, pp. 511–594.

<sup>21</sup> M. Emmison, '"The Economy": Its Emergence in Media Discourse', in H. Davis and P. Walton (eds.), *Language, Image, Media* (Oxford, 1983), pp. 139–155.

tion and the aggregate price level. As we have seen, the measurement of each one of these variables had its separate history. The distinctively modern conception of the economy emerged when they began to be articulated with each other as an interconnected system. The interrelationships were established through the revival in the last decades of the nineteenth century of two of the founding metaphors of modern economics. The most fundamental of these was the conception of the economy as a self-reproducing, circular flow of production and consumption, of expenditure and income. A second key metaphor was the so-called Quantity Theory of Money, which also enjoyed a major revival in the late nineteenth century.<sup>22</sup> This expressed the value of money (the inverse of the aggregate level of prices) as a function of the quantity of money, the rate of its circulation and the level of real economic activity. This relationship was recast in the 1880s as an algebraic equation and acquired canonical status in 1911 with Irving Fisher's *The Purchasing Power of Money*. We shall have much more to say about both these representations of the economy. Suffice to say at this point that they allowed the key economic variables to be brought together as elements in a systematic, aggregative model of the economy. The result was a conception of the economy which since the 1930s has become known as 'macroeconomic'.

This new conception of the economy was emphatically national. This, too, was an option that had been left open by earlier theorizing. For liberals any boundaries imposed on the free operation of markets were artificial intrusions. Similarly, Marx's conception of the mode of production was potentially global in scope. By contrast, the new economic statistics measured the economy as a national unit. And in doing so they constituted it as an obvious field of government action. The creation of the new economic statistics was inseparable from the appearance of a new set of practices known as 'economic policy'. As Donald Winch has put it, our modern conception of 'economic policy' emerged 'out of elements that had previously been treated separately as questions of social administration on the one hand or narrow technical matters of banking and fiscal management on the other'. The new purpose of economic policy was precisely to manage the 'connections between employment levels and monetary, exchange rate, and fiscal conditions'.<sup>23</sup> Winch dates the emergence of this new field of government to the interwar period, which of course coincides with the appearance of

<sup>22</sup> D. Laidler, *The Golden Age of the Quantity Theory* (Princeton, 1991).

<sup>23</sup> D. Winch, 'Economic Knowledge and Government', in B. Supple and M. Furner, *The State and Economic Knowledge. The American and British Experiences* (Cambridge, 1990), pp. 62–63.

the new economic statistics. Economic policy presupposed the existence of a new object of government: an economy conceived of not as an amorphous mass of individuals and markets, but as a holistic entity constituted by the relationship between a limited number of highly aggregated variables. The task of the new economic statistics was to measure these variables and thus to make them governable.

## II

How does this book relate to the existing literature on the history of economics? In particular, some readers may be wondering whether this is simply a retelling of the familiar story about the so-called 'Keynesian revolution'. For a long time this has been the mainstay of the history of modern economic thought. *The General Theory of Employment, Interest and Money* published by John Maynard Keynes in 1936 is generally taken to be the founding text of modern macroeconomics. Its intellectual genesis through the 1920s and 1930s has been an obvious starting point for historians. It is impossible to adequately summarize this enormous literature in a few lines.<sup>24</sup> However, the gist of most recent writing is that Keynes' central contribution was theoretical. *The General Theory* explained how an economy suffering from a shortfall in aggregate demand could find itself in a state of heavy unemployment, from which it had no tendency to recover. The low level of activity brought on by a depressed level of investment became self-sustaining.<sup>25</sup> It was this theoretical analysis of an unemployment equilibrium which gave Keynes' heretical policy prescriptions their originality and force. When the economy was seriously depressed monetary policy would be ineffective. Lowering interest rates would not be enough to raise investment. Government spending was essential to raise aggregate demand and to lift the economy out of recession. It was Keynes' long-running struggle with the Treasury that, in the British case, defined the new field of economic policy. In the United States the battle for demand management was fought out within the New Deal administration. In the aftermath of World War II Keynes' ideas were carried across the globe, establishing the common sense of the postwar period.<sup>26</sup>

<sup>24</sup> For two excellent summaries see G.C. Peden, *Keynes, The Treasury and British Economic Policy* (London, 1988) and P. Clarke, *The Keynesian Revolution and its Economic Consequences* (Cheltenham, 1998b).

<sup>25</sup> Technically speaking this is the 'theory of effective demand', see D. Patinkin, *Anticipations of the General Theory. And other Essays on Keynes* (Chicago, 1982), pp. 5–17.

<sup>26</sup> P.A. Hall (ed.), *The Political Power of Economic Ideas. Keynesianism across Nations* (Princeton, 1989).

The almost obsessive focus on Keynes has produced a historiography of a remarkably high standard. But it has also served to obscure the wider context.<sup>27</sup> As we have progressively sharpened our understanding of the specificities of Keynes' theoretical innovation and the complexities of his own intellectual biography, it has become ever more clear that Keynes' work must be situated within a broad sweep of new macroeconomic theorizing that can be traced back to the 1870s. It is more conventional to see the 1870s as the origin of modern marginalist economics. It was in this period that the building blocks of neo-classical economics were first formulated by Jevons, Menger and Walras: the attribution of factor incomes to marginal productivity, the reformulation of demand theory in terms of consumer preferences and subjective utility, and the consistent linkage of the structure of production to the structure of demand through general equilibrium analysis. However, as David Laidler has shown in his study of neo-classical monetary theory, the 1870s can also be seen as the origin of twentieth-century macroeconomics.<sup>28</sup> It was in the decades after 1870 that theorists such as Alfred Marshall, Irving Fisher and Knut Wicksell elaborated the Quantity Theory of Money into a consistent and powerful tool for understanding movements in the aggregate price level. Building on this analytical framework a second generation of theorists, notably in Britain and Austria, began, around the turn of the century, to elaborate what became known as monetary business-cycle theory. Their models were emphatically macroeconomic, their purpose being to explain the interaction between monetary fluctuations and movements in total production and employment.<sup>29</sup> As Laidler has pointed out, it is quite possible to see even Keynes' *General Theory* as an extension of this tradition. Certainly, Keynes' earlier work can be seen as a linear development of Marshallian monetary macroeconomics.

The development of mathematical techniques for analysing statistical data and testing theory – the so-called econometric revolution – was heavily influenced by these early developments in monetary economics and business-cycle theory. It was interest in the fluctuations of prices that stimulated Jevons and Juglar to undertake the first time-series analysis of price data in the 1860s. As has already been mentioned, it was the switchback of deflation in the 1870s and 1880s followed by inflation from the late 1890s that stimulated the development of index

<sup>27</sup> For a powerful summary see R. Middleton, *Charlatans or Saviours? Economists and the British Economy from Marshall to Meade* (Cheltenham, 1998).

<sup>28</sup> Laidler, *The Golden Age*, pp. 193–199.

<sup>29</sup> In the British case the outstanding examples are A.C. Pigou, *Wealth and Welfare* (London, 1912), R. Hawtrey, *Good and Bad Trade* (London, 1913) and D.H. Robertson, *A Study in Industrial Fluctuations* (London, 1915).



numbers designed to accurately reflect the movements in the general purchasing power of money. By the 1920s the basic techniques for estimating trends and removing seasonal variations were well established. In the 1930s it was the desire to test monetary explanations of the business-cycle that stimulated Tinbergen and the Dutch statistical office to construct the first genuine mathematical model of an entire economy. And it was the econometrician, Ragnar Frisch, who first introduced the term 'macro-dynamics' into the literature, thus giving rise to the more familiar term macroeconomics.<sup>30</sup> Again, this is a story which can be told almost entirely without reference to the Keynesian revolution.

It is these twin 'revolutions' in macroeconomic theory and in econometrics that provide the intellectual context for this book, not the Keynesian revolution *per se*. The explosion of new economic statistics between the 1870s and the 1950s deserves to be treated as a 'statistical revolution' in its own right.<sup>31</sup> As will be shown here, the development of the infrastructure of data-gathering had its own distinct history. But one gets a proper sense of the transformation of economic knowledge in this period only if one understands how the three revolutions were inter-related. The concepts that informed practical efforts at data collection were developed in dialogue with economic theory. And it was the new data produced by the statisticians that provided the material for the econometricians. The interweaving of these three separate strands constituted modern macroeconomic knowledge.

To analyse this process of multiple innovation we need a new analytical model. The existing literature describes the Keynesian revolution in terms of a process of diffusion. At its core are Keynes and his intimates in the 'Cambridge circus'. Out of this incestuous milieu sprang *The General Theory*. The central question for historians is to understand how economists and policy-makers across the world 'reacted' to the provocation of this revolutionary book. In the language of the literary scholar Franco Moretti, this is a 'tree model' of cultural development.<sup>32</sup> Branches, stems and shoots sprout from the Cambridge trunk. By contrast, Moretti suggests that comparative cultural historians

<sup>30</sup> See J.C. Andvig, 'Ragnar Frisch and Business Cycle Research during the Interwar Years', *History of Political Economy*, 13 (1981), p. 713. Frisch applied the label 'macrodynamics' to those studies of the business-cycle that focused on national aggregates, as opposed to those that focused on disequilibria in specific industries. The broader term, macroeconomics, was introduced in 1941, see Clarke, *The Keynesian Revolution and its Economic Consequences*, p. 213.

<sup>31</sup> By contrast with Patinkin, *Anticipations of the General Theory*, pp. 223–260, who collapses the production of new economic statistics and the development of statistical techniques into a single 'econometric revolution'.

<sup>32</sup> F. Moretti, 'Conjectures on World Literature', *New Left Review*, II, 1 (2000).

should adopt the metaphor of the wave. And this certainly seems a more appropriate concept on which to base the study of modern economic knowledge. In the first half of the twentieth century, innovations in the conceptualization and measurement of the economy swept across the globe.

Britain and the United States are well established as independent sites of theoretical and empirical innovation in the interwar years.<sup>33</sup> But the war and the revolution of 1917 also ushered in a feverish period of innovation in Communist Russia.<sup>34</sup> This included the construction of models of economic growth and elaborate and entirely unprecedented systems of national accounting.<sup>35</sup> These experiments were terminated between 1928 and 1930 by the Stalinist crackdown. But, while they lasted, they formed an integral part of an international process of innovation. The Soviet economists followed developments in the West closely. Their work, in turn, had a considerable impact abroad. As will be discussed in chapters 3 and 5, the Weimar Republic appears to have played a strategic role in this transmission of ideas, through the rapid translation into German of Russian publications. Simultaneously, there emerged in Sweden a powerful line of macroeconomic business-cycle analysis – known as the Stockholm school. Unfortunately, discussion of the Stockholm school has, until recently, centred around one question: did Wicksell, Lindahl, Myrdal and Ohlin anticipate Keynes' theory of effective demand, as set out in *The General Theory*?<sup>36</sup> Probably not. But from the broader point of view adopted here, this matters little. The Stockholm school undoubtedly included some of the most sophisticated exponents of the new macroeconomics. Their concern was to account for fluctuations in overall economic activity. Like most of the early generation of macroeconomists their focus was on the aggregate price level. But during the 1930s the younger Swedish economists also turned to the questions of output and employment that were preoccupying Keynes.<sup>37</sup> Accompanying this theoretical work was a parallel programme of empirical enquiry. Most notably a large grant from the

<sup>33</sup> On the United States see G. Alchon, *The Invisible Hand of Planning. Capitalism, Social Science, and the State in the 1920s* (Princeton, 1985), W.J. Barber *From New Era to New Deal. Herbert Hoover, The Economists, and American Economic Policy, 1921–1933* (Cambridge, 1985).

<sup>34</sup> See L. Smolinski, 'Planning Without Theory 1917–1967', *Survey. A Journal of Soviet and East European Studies*, 64 (1967), pp. 108–128.

<sup>35</sup> N. Spulber (ed.), *Foundations of Soviet Strategy for Economic Growth. Selected Soviet Essays, 1924–1930* (Bloomington, 1964) and V. Barnett, *Kondratiev and the Dynamics of Economic Development: Long Cycles and Industrial Growth in Historical Context* (London, 1998).

<sup>36</sup> Patinkin, *Anticipations of the General Theory*, pp. 36–57.

<sup>37</sup> L. Jonung (ed.), *The Stockholm School of Economics Revisited* (Cambridge, 1991).

Rockefeller Foundation enabled Swedish statisticians to compile one of the longest series for national income available in the 1930s.<sup>38</sup> The steady pace of Swedish expansion, untroubled by major wars, provided the ideal case study of stable, long-run growth trend. The history of econometrics reveals two other sites of innovation. In Norway Ragnar Frisch was pivotal to the development of the theory of modern econometrics.<sup>39</sup> He formed a crucial link between the theoretical work of the Russian statistician Slutsky, who was one of the few survivors of the Stalinist purges, and the Cowles Commission in Chicago that was to set the agenda for postwar econometrics. In the Netherlands, meanwhile, Jan Tinbergen and the Dutch Statistical Office began work on the world's first macroeconomic model.<sup>40</sup> With the assistance of the League of Nations his techniques were later to be extended to modelling the US economy.

This book aims to establish the existence in Germany of another major strand of 'new economics'. Germany has hitherto played a shadowy role in debates about interwar economics. It has always been tempting to seek out precursors of Keynes amongst the German advocates of work-creation in the 1930s.<sup>41</sup> However, this line of enquiry has proven an intellectual dead-end. The foundation for a more adequate understanding has now been provided by a number of important studies.<sup>42</sup> These provide a panoramic reconstruction of the intellectual field of German economic theory in the interwar period. The result, as in the United States, Sweden and Britain, has been to reveal a broadly based tradition of monetary macroeconomics. This originated in the decades before World War I, and by the 1920s had reached a considerable level of sophistication. This book hopes to consolidate this reassessment of economics in interwar Germany. It reveals how the new macroeconomic theory formed the basis for an innovative programme of

<sup>38</sup> E. Lindahl, E. Dahlgren and K. Koch, *National Income of Sweden 1861–1930* (Stockholm, 1937).

<sup>39</sup> Andvig, 'Ragnar Frisch'.

<sup>40</sup> A. Wilts, 'Changes in Dutch Economics in the 1930s', in P. Fontaine and A. Jolink (eds.), *Historical Perspectives on Macroeconomics. Sixty Years after the General Theory* (London, 1998), pp. 105–132.

<sup>41</sup> G. Garvy, 'Keynes and the Economic Activists of Pre-Hitler Germany', *Journal of Political Economy*, 83 (1975), pp. 391–405 and G. Bombach, K.-B. Netzbach, H.-J. Ramser and M. Timmermann (eds.), *Der Keynesianismus III. Die geld- und beschäftigungstheoretische Diskussion in Deutschland zur Zeit von Keynes* (Berlin, 1981).

<sup>42</sup> R. Vilk, *Von der Konjunkturtheorie zur Theorie der Konjunkturpolitik* (Wiesbaden, 1992), H. Janssen, *Nationalökonomie und Nationalsozialismus. Die deutsche Volkswirtschaftslehre in den dreißiger Jahren* (Marburg, 1998) and H. Hagemann, 'The Analysis of Wages and Unemployment Revisited: Keynes and Economic "Activists" in Pre-Hitler Germany', in L.C. Pasinetti and B. Schefold (eds.), *The Impact of Keynes on Economics in the 20th Century* (Cheltenham, 1999), pp. 117–130.

statistical investigation, heavily sponsored by the Weimar state. Germany must thus be counted alongside the United States, the Soviet Union, Britain, Sweden and the Netherlands as an important site in the development of modern macroeconomic statistics. This, in turn, should consolidate the more general shift in perspective being advocated here. The development of new forms of economic knowledge was too widespread to be described helpfully in terms of a process of diffusion. German-speaking economists read the theoretical and statistical work being published in Britain as a matter of course. But these influences were seen as part of a more general move towards an aggregative conception of the economy. In the 1920s, when German macroeconomics began to be articulated most forcefully, Cambridge, England commanded no outstanding place in its intellectual universe. From a German perspective the emergence of the new economics appeared to be a truly global phenomenon.

And the breadth of this development also implies that its end-point was uncertain. Teleology is one of the characteristic weaknesses of the literature on ‘proto-Keynesian’ and ‘pre-Keynesian’ economic thought. A case study of Germany provides a powerful antidote. The first half of this book traces the development of Germany’s precocious macroeconomic statistics to familiar intellectual origins in the quantity theory of money. After World War I this aggregative understanding of the economy was embodied in an innovative system of official national accounts. Germany might therefore be seen as travelling along a path that led to the ‘Keynesian consensus’ of the postwar period. However, after 1933 Germany took a radically different direction. The Reich’s statisticians placed themselves at the service of the Nazi regime. As a result, the system of macroeconomic statistics created in the 1920s began to mutate into something quite different. By the final stages of the war German statisticians were beginning to elaborate a system of comprehensive surveillance that resembled a full-blown system of Stalinist planning. The German case thus forms a bridge between the development of new techniques of economic governance in the capitalist West and that other great experiment in modern government in the East. Interwar modernity was multi-faceted, its ultimate destination uncertain. A case study of Germany provides a powerful reminder of this contingency.

Understanding the development of modern economic knowledge as a wave of innovation rather than a process of diffusion requires us to stretch the chronological frame and expand our geographic range. It also requires us to problematize the postwar ‘Keynesian consensus’ as the inevitable conclusion of our story. More generally it requires us to

rethink our analytical strategies.<sup>43</sup> Local accounts need to be controlled by being set against a broader backdrop. Hitherto, the diffusionist story of the Keynesian revolution has tended to focus on the interactions between economists and state elites – ‘experts’, civil servants and politicians. This nexus must undoubtedly be central to each national story. But, given the ubiquity of new forms of economic knowledge, particular stories that focus on the interactions between small groups of individuals can hardly suffice. We must always bear in mind the role played by more general explanatory factors. The rest of this introduction will be concerned with four general influences that have helped to frame this German case study: the transformation of the industrial economies themselves in the period between the 1880s and the 1930s; the crisis-ridden development of the ‘big state’; the development of new information technologies; and the cultural and intellectual tendencies encapsulated within the term ‘modernism’.

### III

The decision to make real economic change the first point on the list may require some justification. In recent years it has been fashionable to adopt a constructivist approach to the study of knowledge. The literature has tended to emphasize the autonomy of the knowledge producers from the object they are observing. It has stressed the discursive construction of new forms of economic knowledge rather than the influences of ‘real’ economic changes.<sup>44</sup> In the 1980s there was a parallel shift in the political sciences towards stressing the autonomy of the state. As a result, we have an important collection of essays on *The State and Economic Knowledge*, but no equivalent volume on ‘the economy and economic knowledge’.<sup>45</sup> This is not to advocate a return to crude determinism. An engagement with the broader currents of economic history follows naturally from studying statistics like other forms of practical economic knowledge, such as accountancy. Statisticians, after all, generate their data not through abstract speculation but through interactions with economic actors themselves, through questionnaires returned by businesses or households, or indirectly by harvesting the data generated by other branches of the state in their dealings with the private sector. Changes in economic life thus have a direct impact on the

<sup>43</sup> See the remarks in P. Hall ‘Introduction’, in Hall, *The Political Power of Economic Ideas*, pp. 3–26.

<sup>44</sup> A particularly radical example is P. Mirowski, *More Heat than Light. Economics as Social Physics: Physics as Nature’s Economics* (Cambridge, 1989).

<sup>45</sup> M.O. Furner and B. Supple (eds.), *The State and Economic Knowledge. The American and British Experiences* (Cambridge, 1990).

activity of data-gathering. In recent years this has been brought home very forcibly by discussions of the so-called ‘weightless economy’. How are statisticians to measure an economy that is increasingly driven by the rapid product cycle of microelectronics and the intangible products of the service sector?<sup>46</sup> This book provides the historical backdrop to these present-day concerns. It shows how we learned to measure the ‘heavy economy’.

By the turn of the twentieth century, economic and social development had transformed the conditions for economic data-gathering. For generations, statisticians and economists had dreamed of imposing an orderly scheme of measurement on the world. What distinguished early twentieth-century planners and social engineers from their predecessors was that they could actually do it! In the advanced economies of the world the vast bulk of productive activity was directed towards the market. Most production was separated from the domestic sphere and organized in businesses – farms, industrial firms or commercial businesses – with a clear-cut legal identity. Communication across the territory of nation-states was eased by the revolution in transport and communication technologies. These in turn encouraged the spread of literacy and numeracy, supported by the extension of formal education. These fundamental processes made the economy countable in a new way. In fact, as Marx pointed out, the economy was quantifying itself in an apparently unstoppable and profoundly alienating fashion. Liberals saw the same process as the progress of rationality; Max Weber, characteristically, saw both sides of the coin: the all-encompassing rationalization of the world and the disenchantment it inevitably entailed. Statisticians and accountants were part of the army of bureaucrats who were the agents of this process. Whereas eighteenth- and early nineteenth-century statistics had relied on impressionistic accounts provided by local notables, statisticians in the early twentieth century could hope to directly enumerate the entire economic process. Questions could be addressed to firms and businesses and they could be expected to provide a verifiable account of themselves in a mutually intelligible language. The fringes of the formal economy, such as the homeworkers who had so plagued nineteenth-century enquiries, were shrinking to extinction.<sup>47</sup> Counting an economy dominated by a few thousand substantial firms presented immense new opportunities. The commanding heights could be surveyed with relative ease. By the

<sup>46</sup> J. Madrick, ‘The Cost of Living’, *The New York Review of Books*, 44, 4 (1997), pp. 19–23.

<sup>47</sup> R. Meerwarth, ‘Die Erfassung der Hausindustrie durch die gewerbliche Betriebsstatistik’, *Jahrbücher für Nationalökonomie und Statistik*, III, 42 (1911), pp. 313–330.

interwar period one could survey the vast majority of industrial activity by addressing questions only to firms with more than 10 employees, 'reasonable' entities with at least a sense of modern managerial habits. Such firms could be asked to supply more information, more regularly and more quickly. Not, of course, that all was simple. Large firms posed their own problems of enumeration. As production became more complex and more integrated it became increasingly difficult to obtain information on separate processes. And this was not just a problem for statisticians looking in. Firms were far from transparent to themselves. Only through elaborate cost accounting systems was it possible for large corporations to 'see inside' their own operations. The wave of new economic statistics rode in on the spring tide of modern bureaucracy and scientific management.

The broad processes of economic and social change thus created new conditions for enumeration. But economic change, like every other aspect of reality, requires interpretation. What sense the statisticians made of economic change was not determined by the process itself. Spokesmen of various kinds played a creative role in naming and interpreting the profound economic transformations going on around them.<sup>48</sup> Over the course of the nineteenth century official statisticians came to occupy a particularly important role as interpreters of economic and social change. The German statisticians who are the subjects of this book were convinced that with the boom of the 1890s Germany had entered a new phase of corporate capitalism. Their ambition was to reorganize the system of economic statistics to match this challenge. And the descriptions they produced were not neutral. Statistics and economic research were a weapon of choice in the interest group struggle. Was the future agrarian or industrial? How might small-scale production survive alongside the giants of industry? Which were the industries of the future? People turned to statistics for answers. The statisticians did more than describe; they defined the parameters for interest group formation and political argument. In the process, they contributed to the shaping of social reality.

#### IV

The growth of modern economic statistics was thus linked to the emergence of the modern economy. But it also clearly belongs to the history of the state. The quantum leap in the production of economic knowledge that is the subject of this book was due largely to the

<sup>48</sup> P. Bourdieu, *Ce Que Parler veut Dire. L'économie des échanges linguistiques* (Paris, 1982), pp. 135–161.

involvement of the state. Modern economic statistics are an integral part of ‘big government’.<sup>49</sup> The expansion of public sector activity was a general phenomenon observable across the globe from the late nineteenth century. Again, this can be interpreted as an incremental process driven by the demands of a complex civil society for services and regulation. The emergence of ‘labour statistics’, for instance, was clearly a systematic response to the emergence of capitalist labour markets and organized forms of industrial relations. The revival of interest in national income estimation around the turn of the century can also be related to the pressures of ‘mass politics’. Imperialist nationalism was one factor. A national income estimate allowed one to compare one’s position to that of other industrial powers. But the estimates also addressed common domestic concerns. The increasingly intense interest group struggles fermenting within industrializing societies made the language of productivism attractive to both intellectuals and politicians.<sup>50</sup> Across the political spectrum the promotion of higher production and greater material welfare as ends in themselves was a characteristic feature of the early twentieth century. Productivism, as a politics of quantity, naturally spoke the language of statistics. How big was the cake that was to be divided? How fast was it expanding? How much did each group contribute? And how many people did it have to feed? These were crucial questions for the new democratic politics. And it was these questions that stimulated efforts to estimate national income in the United States, in the United Kingdom and in Germany.<sup>51</sup> In due course it was the state that took responsibility for producing the figures that defined the parameters of social and economic policy.

But the example of national income estimation also points to the independent momentum of state expansion. The production of new statistics was sustained by the growth in other branches of the state. It constituted a form of second-order state expansion. Statistical divisions sprang up to make the most of the paperwork accumulating within the official bureaucracy. Tax records were the fundamental source for most of the early estimates of national income. As the share of national income going through the state coffers increased, it became easier to assemble the data from which to compile a national income estimate. The crucial threshold was the imposition of comprehensive income

<sup>49</sup> For a very helpful discussion see R. Middleton, *Government versus the Market. The Growth of the Public Sector, Economic Management and British Economic Performance, c. 1890–1979* (Cheltenham, 1996).

<sup>50</sup> C.S. Maier, *In Search of Stability. Explorations in Historical Political Economy* (Cambridge, 1987b), pp. 19–69.

<sup>51</sup> J.A. Tooze, ‘Imagining National Economies: National and International Economic Statistics, 1900–1950’, in G. Cubitt (ed.), *Imagining Nations* (Manchester, 1998).